

**ADAPTIVE METHOD AND APPARATUS TO CONTROL LOOP BANDWIDTH  
OF A PHASE LOCK LOOP**

ABSTRACT OF DISCLOSURE

5        Disclosed is a PLL (Phase Lock Loop) reducing the lock-in-time of the phase lock loop by altering the impedance of the damping resistor portion of the included LPF (Low Pass Filter) as a function of the difference in frequency or phase between a PLL applied reference frequency and the output  
10 frequency provided by the VCO (Voltage Controlled Oscillator) portion of the PLL. This variable impedance is accomplished by introducing a feed forward path that switches a capacitor in and out of the circuit in accordance with the difference frequency. One embodiment uses a mixer to provide the  
15 difference frequency signal.